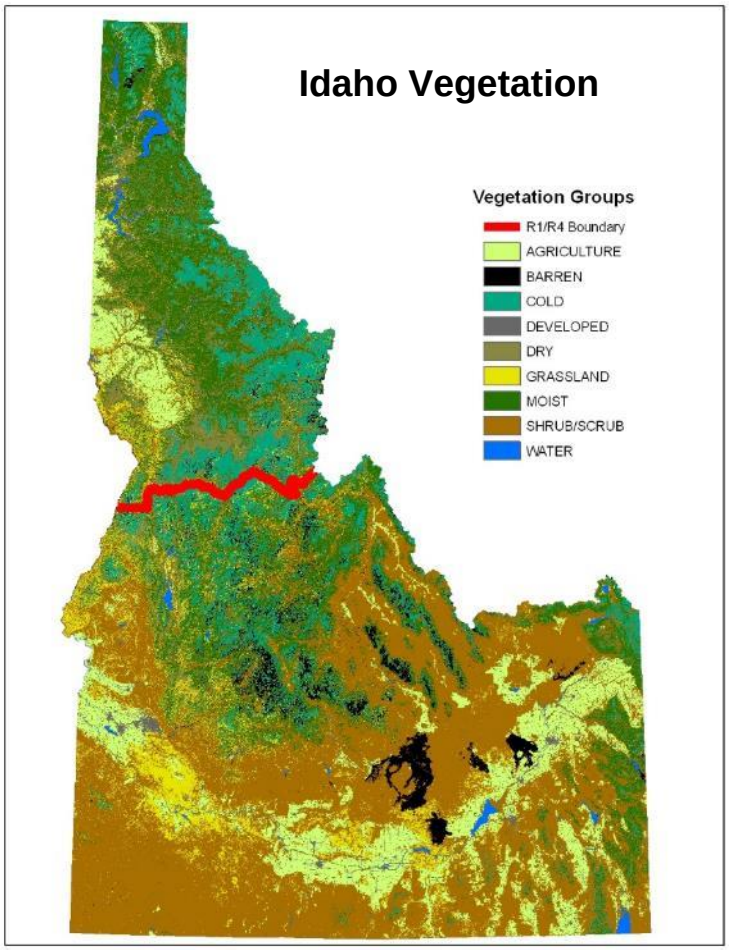
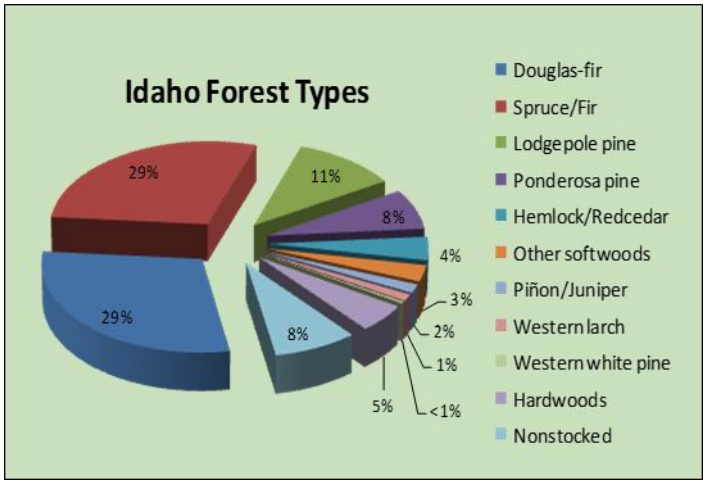
Idaho's Forest Resources

Idaho has over 21 million acres of forest land, from the Canadian border in the north, to the Great Basin in the south. Elevations range from less than 1,000 feet along the Clearwater River valley to over 12,000 feet in the Lost River Range of southeastern Idaho. The mixed conifer forests in the Panhandle area can be moist forest types that include tree species found on the Pacific Coast such as western hemlock, Pacific yew, and western redcedar. Southern Idaho forests are generally drier, and ponderosa pine and Douglas-fir are most common. Lodgepole pine, Engelmann spruce, whitebark pine and subalpine fir occur at higher elevations throughout the state.



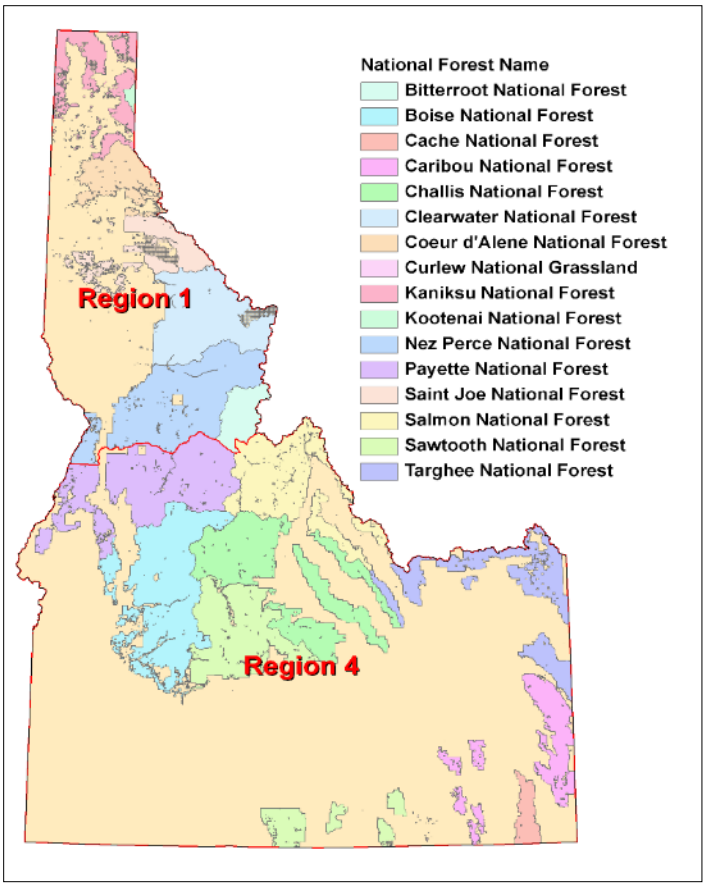


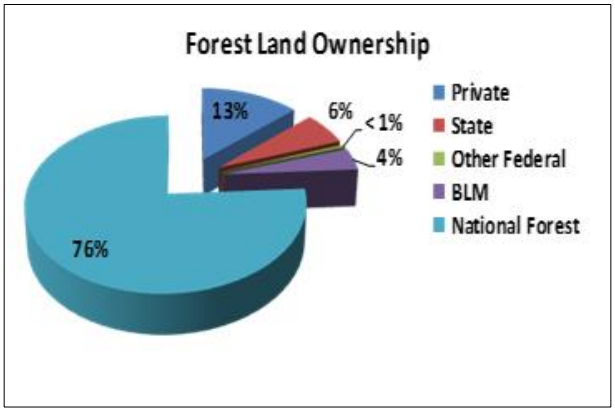
The Importance of Idaho's Forests

Idaho's forests are important for many reasons. Forests are home to wildlife, provide watersheds for drinking water, and protect streams that are habitat for many species of fish, including salmon, steelhead and bull trout. Forests are also important for recreation, and Idaho has over 4.5 million acres of wilderness. Idaho's forests are renewable, and are an important resource for the forest products industry. Maintaining healthy forests is crucial to protect all the things that they provide.

Forest Ownership in Idaho

The majority of forest land in Idaho is owned by the Federal government (> 16 million acres), and of this, most is administered by the U.S. Forest Service. The state of Idaho owns just under 1.3 million acres, and private landowners own an additional 2.8 million acres. The various owners often have different management objectives. Idaho's National Forests lie within two administrative regions. The Northern Region (Region 1) is located north of the Salmon River and is comprised of the Idaho Panhandle, Nez Perce-Clearwater and Bitterroot National Forests. The Intermountain Region (Region 4) is in southern Idaho and includes the Boise, Payette, Sawtooth, Salmon-Challis, and Caribou-Targhee National Forests.





Idaho's Forest Industry

Idaho has a productive forest industry, with 2018 estimated revenues of wood and paper products totaling almost $2 billion. An estimated 13,306 people were directly employed in the forest products industry in 2018. The total harvest was estimated at 1.15 billion board feet of timber. An estimated 56% of this total came from private lands. State land provided 20% and federal lands provided 24% of the total. Most of Idaho's commercial forestland and larger production facilities are located north of the Salmon River. Forest products from Idaho's forests are sold throughout the world. Link to University of Idaho Policy Analysis Group.

Aerial Detection Survey Results

Bark Beetles

In 2018, fir engraver mortality was observed on over 101,000 acres compared to 55,000 acres in 2017. The increase is probably due to drought. Approximately 65,000 acres were impacted by mountain pine beetle compared to 28,000 acres in 2017. Most of the mortality was in lodgepole pine, but approximately 1900 acres of other pine species (limber, ponderosa, whitebark, and western white) were affected in 2018. Douglas-fir beetle caused mortality on over 28,000 acres in 2018 compared to approximately 49,000 acres in 2017. Western pine beetle mortality decreased to approximately 2,900 acres but pine engraver mortality was recorded at a level similar to last year. The recent droughty conditions contributed to bark beetle mortality.

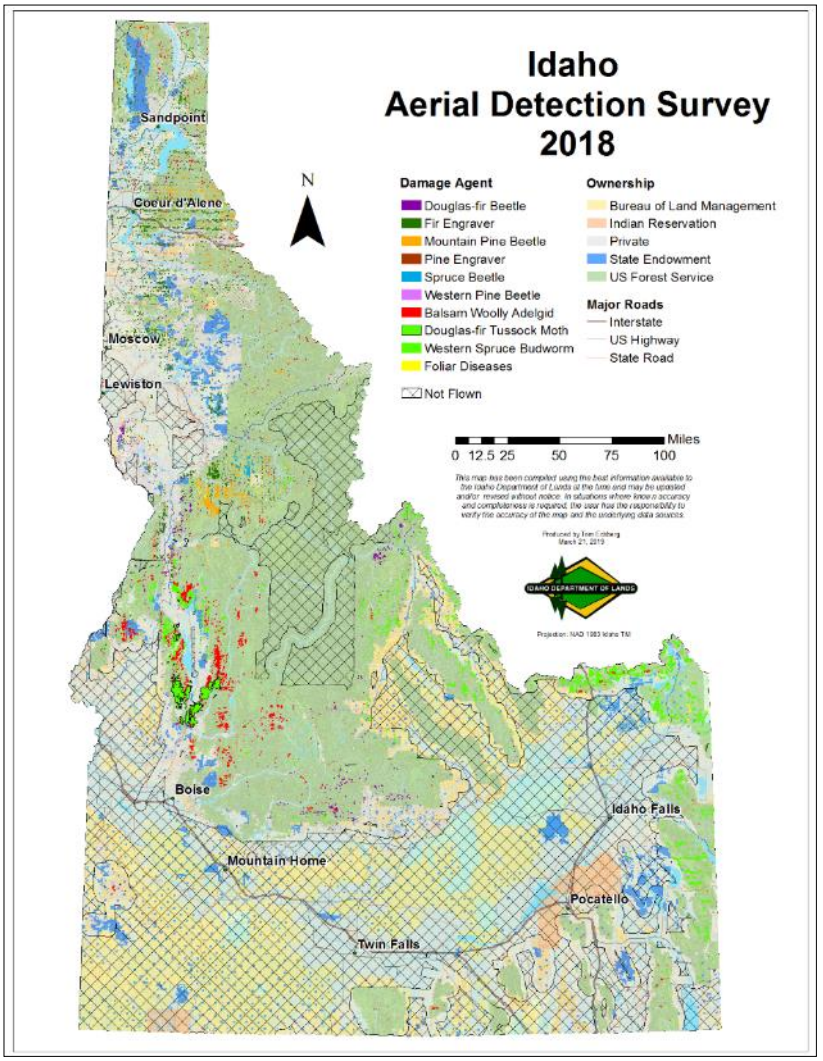
Defoliators

Western spruce budworm is a major defoliator of Douglas-fir and grand fir in Idaho, especially in the south. Approximately 273,000 acres were affected in 2018 compared to over 260,000 acres in 2017. Most of the defoliation is in southern Idaho. Douglas-fir tussock moth populations reached outbreak levels in southern Idaho in 2018, and caused over 107,000 acres of defoliation in and adjacent to the Boise and Payette National Forests. Populations are expected to collapse in 2019. No defoliation was observed in northern Idaho in 2018.

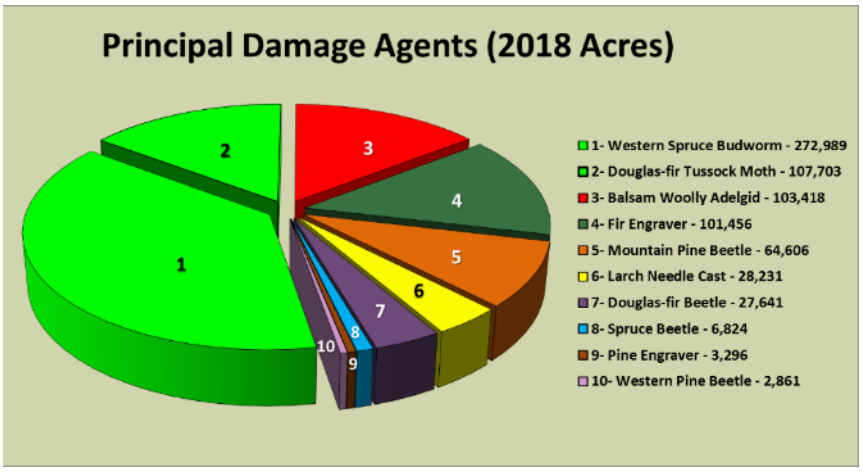
Other Agents

Approximately 28,000 acres were affected by larch needle cast in 2018, compared to 47,000 acres in 2017. Mortality of subalpine fir, attributed to balsam woolly adelgid, western balsam bark beetle and possible root disease increased in 2018 to approximately 103,000 acres, up from 38,000 acres recorded in 2017.

Link to Aerial Detection Survey Map



Notes on Aerial Detection Surveys

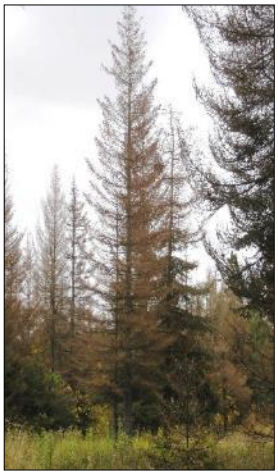

Principal Damage Agents (2018 Acres)
1- Western Spruce Budworm - 272,989
2- Douglas-fir Tussock Moth - 107,703
3- Balsam Woolly Adelgid - 103,418
4- Fir Engraver - 101,456
5- Mountain Pine Beetle - 64,606
6- Larch Needle Cast - 28,231
7- Douglas-fir Beetle - 27,641
8- Spruce Beetle - 6,824
9- Pine Engraver - 3,296
10- Western Pine Beetle - 2,861

A total of 27.9 million acres were surveyed in Idaho in 2018, compared to 27.1 million acres in 2017. It is important to remember that trees attacked by bark beetles do not usually change color until the following year, so mortality observed in 2018 actually represents trees that were attacked in 2017.

Idaho's forests are also significantly impacted by diseases, but not all diseases are easily detected from the air. With the exception of foliar diseases, **most *forest diseases are not well represented by aerial detection surveys.*** Root diseases are very common in northern Idaho, affecting over 8 million acres, with most mortality occurring in Douglas-fir, grand fir, and subalpine fir in northern Idaho. Dwarf mistletoes infect over 2.5 million acres of forest statewide. These parasites are especially damaging on western larch, Douglas-fir, lodgepole pine and ponderosa pine. White pine blister rust is widespread throughout the range of western white, whitebark and limber pines, affecting millions of trees, though an acreage estimate would be difficult to determine.

Key Forest Insect Issues in Idaho

Bark beetles continue to kill susceptible trees in Idaho, though the totals have decreased markedly over the last several years. The decrease is most likely due to host depletion. In 2018, mountain pine beetle killed trees on almost 65,000 acres in Idaho, compared to a peak of over 1.9 million acres in 2010. **Spruce beetle** is another bark beetle that is capable of large scale mortality in susceptible spruce stands. Approximately 6,800 affected acres were identified in the Nez Perce National Forest in north central Idaho in 2018. There were approximately 10,000 and 3,300 affected acres in the same area in 2017 and 2016 respectively. Link to IDL publication:



The Douglas-fir tussock moth is a defoliating insect that periodically infests Douglas-fir and true firs in Idaho. Outbreaks occur approximately once per decade, and the most damaging infestations have occurred in northern Idaho. Historically, outbreaks have lasted 1-4 years, and then natural controls bring the populations down to undetectable levels. Considerable defoliation (>107,000 acres) was observed in and adjacent to the Boise and Payette National Forests in 2018. The Douglas-fir tussock moth will probably begin to defoliate forested areas in northern Idaho within the next three years. Link to USFS brochure.

Western spruce budworm infested acres increased in 2018 to approximately 273,000 acres, compared to 258,000 acres in 2017 and 730,000 acres in 2016. In 2011 the total was over 1.8 million acres. The reason for the decrease in unclear. Link to USFS publication:

Gypsy moth survey. Over 3,700 pheromone traps were deployed and collected in Idaho in 2018, and no European gypsy moths were captured. A delimit survey was concluded in Bannock County in 2018. Link to IDL 2018 Gypsy Moth Report

Key Forest Disease Issues in Idaho

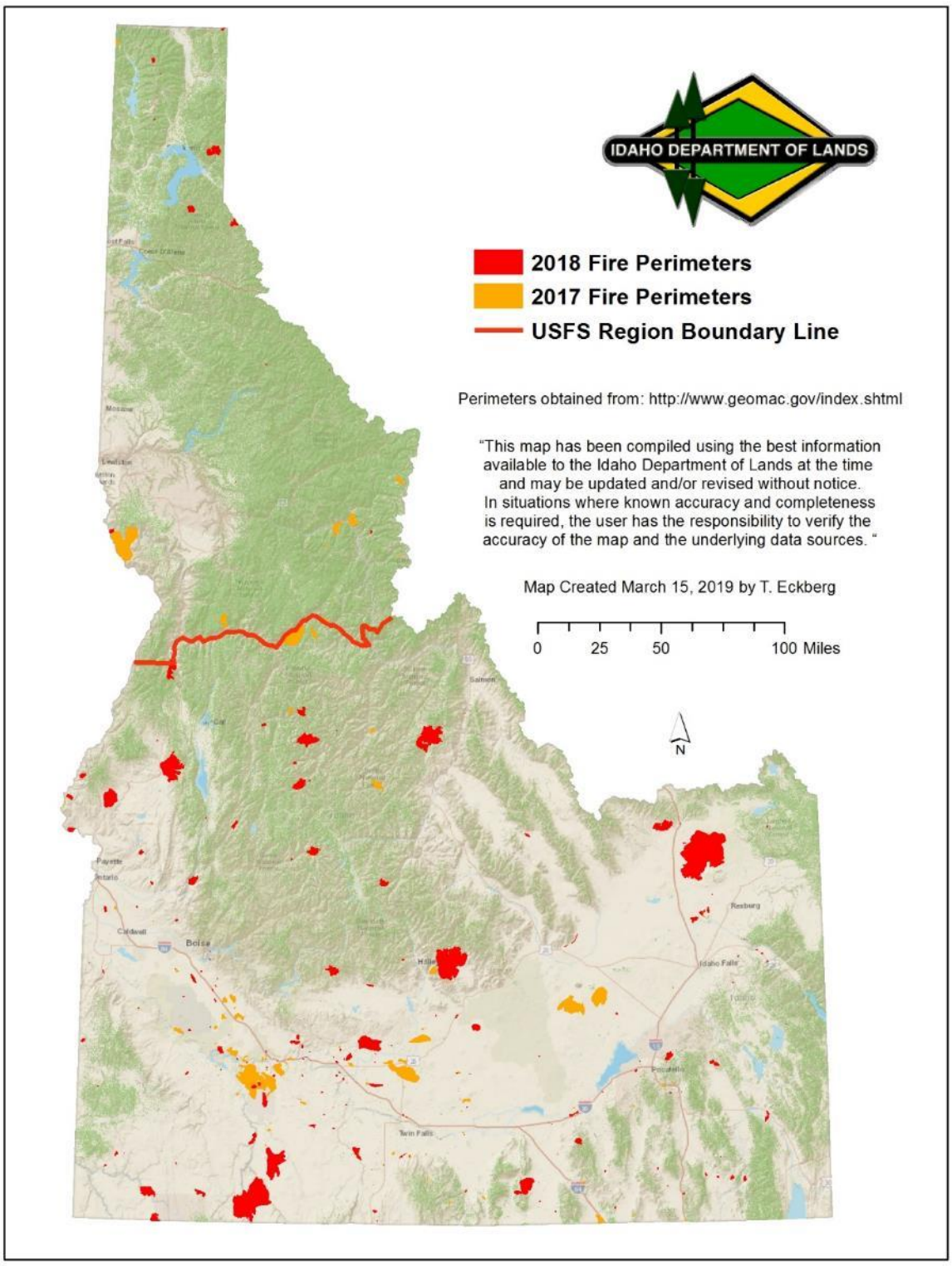
Root diseases north of the Salmon River kill millions of trees every year. Douglas-fir and grand fir are particularly susceptible. Root diseases are more prevalent than aerial detection survey data indicate, and are very common in northern Idaho. Root diseases can be managed through silviculture by encouraging tolerant species. While all conifer species are susceptible to root diseases (especially at a young age), pines, western larch and western redcedar are more tolerant, especially after the trees reach 20-25 years of age. Link to additional information:

White pine blister rust is an introduced disease that kills 5-needled pines (western white, whitebark and limber) throughout western North America. Western white pine (WWP) was the dominant tree species in much of northern Idaho. Due to rust, fire suppression and past management practices, western white pine in now a minor component of many of these same forests. Idaho's forest type that was dominated by western white pine is now reduced to 5% of its historic levels. The Idaho Department of Lands aggressively plants rust resistant WWP in stands where it was historically present. Western white pine is fast growing, drought tolerant, and is not highly susceptible to root diseases. *Photo (R) by J. Schwandt* Link to USFS publication:

Dwarf mistletoes infect many species of conifers in Idaho. Most damage is on western larch, Douglas-fir, ponderosa and lodgepole pines. These parasitic plants reduce growth and over time can kill trees. Dwarf mistletoes are fairly host specific, and can be managed through silviculture by removing heavily infected trees and by converting stands to nonhosts. Link to USFS publication:

Foliar Diseases can infect many species of conifers in Idaho, but damage is most noticeable on western larch and lodgepole pine. While the appearance can be dramatic, the effect on trees is usually minor. Cool, wet spring weather during needle development is favorable for disease development. Approximately 28,000 acres of foliar diseases were mapped in 2018, compared to approximately 49,000 acres in 2017. Link to IDL Forester Forum:

2018 Fire Season


IDAHO DEPARTMENT OF LANDS
2018 Fire Perimeters
2017 Fire Perimeters
USFS Region Boundary Line
Perimeters obtained from: http://www.geomac.gov/index.shtml
"This map has been compiled using the best information available to the Idaho Department of Lands at the time and may be updated and/or revised without notice. In situations where known accuracy and completeness is required, the user has the responsibility to verify the accuracy of the map and the underlying data sources. "
Map Created March 15, 2019 by T. Eckberg
0 25 50 100 Miles
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Fire Activity in Idaho, 2018

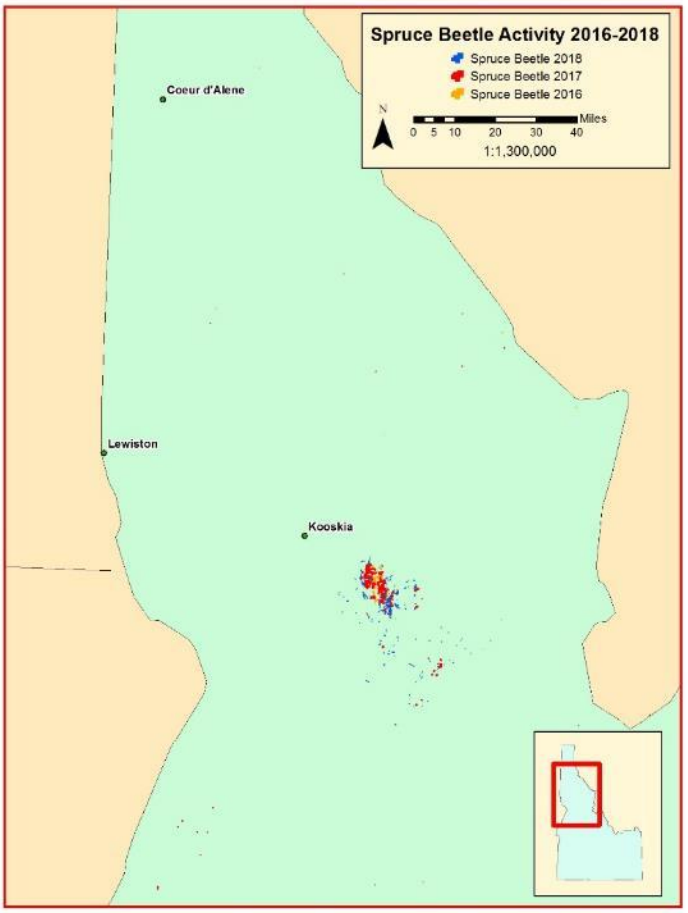
The total acreage burned in Idaho in 2018 was over 650,000 acres. A large percentage of the acreage burned in Idaho in 2018 was range land in southern Idaho.

Link to IDL Fire Bureau 10 year fire data 2007-2017

Spruce Beetle 2016-2018

Spruce beetle (*Dendroctonus rufipennis*) is a native bark beetle that can have irruptive populations capable of landscape level mortality. Severe outbreaks have occurred in Utah and Alaska in the 1990s, and a current outbreak in Colorado impacted over 200,000 acres in 2017. This species attacks Engelmann spruce in Idaho, and there have been large scale outbreaks in the past. Until recently, spruce beetle has been at low population levels in Idaho, but an outbreak was identified in the Nez Perce National Forest in 2016, and the damage continued in 2018 with 6,800 affected acres. Outbreaks often start with wind events that uproot large diameter spruce. The beetles infest these down trees, and populations build over time and then attack standing trees. Outbreaks generally subside when suitable hosts (large diameter spruce) are depleted.
Link to USFS Publication

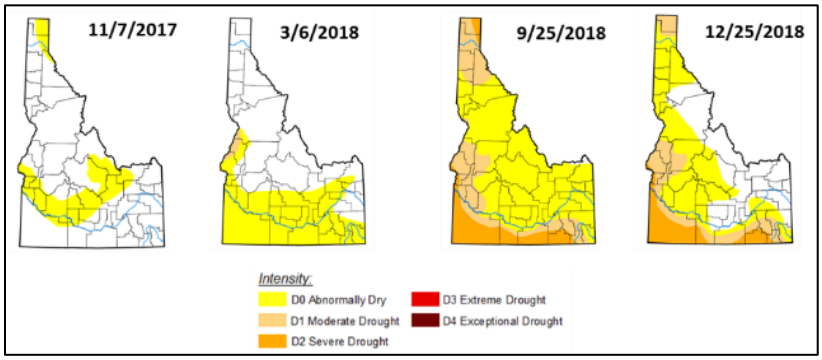
Photograph of 2018 spruce beetle mortality on the Nez Perce National Forest, Idaho.

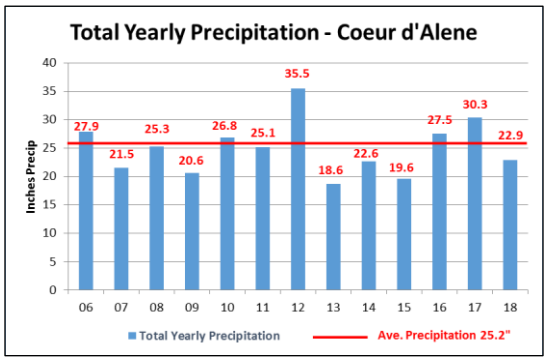


Map of 2016-2018 spruce beetle mortality in the Nez Perce National Forest, Idaho.

Drought in Idaho

Northern Idaho had been receiving abnormally low precipitation since 2013, especially during the growing season. By 2015 many areas were experiencing severe or extreme drought. In addition to increased fire activity during drought, trees are stressed and often become more susceptible to bark beetle attack. Certain bark beetle species such as pine engraver (*Ips pini*), western pine beetle (*Dendroctonus brevicomis*) and fir engraver (*Scolytus ventralis*) tend to cause more problems for land managers during droughts. *Scolytus monticolae*, a secondary species that does not normally cause serious problems, was killing Douglas-fir of all ages. This species usually attacks small, weakened trees or branches of trees. Mortality from *S. monticolae* was common during the fall of 2015 through spring of 2016, but became less visible as normal moisture returned in late 2016. Idaho Department of Lands personnel received an uptick of calls about secondary beetles in 2018. Overall, 2018 was a below average year for precipitation, with very little moisture falling during July-September. Wet weather during the fall decreased the level of drought, though parts of Idaho remained in severe drought. Winter snows brought most of the state out of drought by March 2019. [Link to NOAA Drought Monitor]





Bark Beetles and Drought

Fir engraver-killed trees on hillside near Coeur d'Alene, June 2016.

Ponderosa pine killed by pine engraver and western pine beetle in Post Falls, February 2016.

Douglas-fir killed by Scolytus monticolae in Hayden, May 2016.

For More Information

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Coeur d'Alene, ID 83815
(208) 769-1525

Forest Health Protection
USDA Forest Service
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Coeur d'Alene, ID 83814
(208) 765-7342
and
Boise Field Office
USDA Forest Service
1249 Vinnell Way, Suite 200
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(208) 373-4227

Interior West Forest Inventory and Analysis
USDA Forest Service
507 25th St.
Ogden UT 84401
(801) 625-5388